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LEANNE MYNOTT
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AND SALES

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PROVISIONAL SPECIFICATION

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Invention Title: **Method and system to download and track digital material**

The invention is described in the following statement:

Method And System To Download And Track Digital Material

Technical Field

[001] The present invention relates to a method and system to download and track digital material, and in particular, to means to manage the downloading and transferring of copyrighted, licensed or otherwise protected digital material to prevent unauthorised duplication.

Background Art

[002] "Digital material" as used herein refers to any digital or computerised data or information that may be stored and transferred between electronic devices or storage devices, such as any type of terminal as herein described.

[003] A "Digital Data Item" (DDI) is a single particular instance of digital material. A DDI is a uniquely identifiable item of digital material.

[004] In a networked data communications system, users have access to terminals which are capable of requesting and receiving information from local or remote information sources. In such a system a terminal may be a type of processing system, computer or computerised device, a personal computer (PC), a mobile or cellular telephone, a mobile data terminal, a portable computer, a personal digital assistant (PDA), a pager, a thin client, a T.V., a set top box or any other similar type of electronic device. The capability of the terminal to request and/or receive information or data files, eg. a DDI, can be provided by an application program, hardware, firmware, etc.. A terminal may be provided with associated devices, for example a local

storage device such as a hard disk drive or solid state drive or memory, a media card (for example CF or SD card), etc..

[005] An information source can be a server(s) or any other type of suitable terminal coupled to an information storage device. The exchange of information (i.e., the request and/or receipt of information or data, such as a DDI) between the terminal and the information source, or other terminal(s), is facilitated by communication means. The communication means can be realised by physical cables, for example a metallic cable such as a telephone line, semi-conducting cables, electromagnetic signals, for example radio-frequency signals or infra-red signals, optical fibre cables, satellite links or any other such medium or combination thereof connected to a network infrastructure.

[006] The network infrastructure can include devices such as a telephone switch, a base station, a bridge, a router, or any other such specialised component, which facilitates the connection between the terminal and the information source. Collectively, an interconnected group of terminals, communication means, infrastructure and information sources is referred to as a network. The network itself may take a variety of forms. For example, it may be a computer network, telecommunications network, data communications network, Local Area Network (LAN), Wide Area Network (WAN), wireless network, Internetwork, Intranetwork, the Internet and developments thereof, transient or temporary networks, combinations of the above or any other type of network providing for communication between computerised, electronic or digital devices. A network as referenced in this specification should be taken to include

any type of terminal or other similar type of electronic device, or part thereof, which is rendered such that it is capable of communicating with at least one other terminal.

[007] Presently, the distribution of digital material has not been limited in any formalised way. The downloading of digital material can be limited by password, or user name and password, however, once digital material is downloaded to a terminal the distribution of the digital material is usually unlimited.

[008] Some attempts at limiting the distribution of digital material have been made by consortiums of manufacturers, content providers and industry bodies. Attempts at Digital Rights Management (DRM) have been made as a "one-size-fits-all" solution for all situations. The technologies used in DRM include the watermarking of the digital material and subsequent re-watermarking. Present DRM solutions are plagued with both technical and political problems.

[009] There is a need to provide a reliable method and system of downloading, tracking and/or monitoring digital material to prevent the proliferation of pirated copies and ensure that, if desired, revenues may be collected on a per-copy basis, which can additionally enhance the "collectability" of the digital material.

[010] It would be beneficial for digital material, such as images, audio, ring tones, games, songs, etc., to be able to be downloaded, tracked and/or monitored regardless of how the digital material may be propagated, for example, via a

network, swapping of a storage device or media card, or any other means.

[011] This identifies a need for a method, system or computer readable medium of instructions which overcomes or at least ameliorates problems inherent in the prior art.

Disclosure Of Invention

[012] In a broad form the present invention seeks to provide a system and method that is adapted to manage the secure transferring of copyrighted, licensed or otherwise protected digital material, such as images, audio, ring tones, games, songs, etc., between terminals in such a way as to prevent unauthorised duplication.

[013] The present invention seeks to provide:

a) a fixed, or finite, number of copies of digital material as Digital Data Items (DDIs) that can be downloaded from an information source; and

b) that a DDI can be transferred or "swapped", but cannot be modified or duplicated. This seeks to ensure that only a finite number of copies of DDIs are ever in circulation, thus also enhancing the digital material's "collectability".

[014] In a further broad form the present invention seeks to provide a subscription based download service that limits the total number of times that a DDI may be downloaded, thereby seeking to ensure that only a finite number of copies of a particular item of digital material are in circulation. In particular forms, such a system may be offered on a paid subscription basis or as a value-adding promotional service.

[015] The present invention also seeks to facilitate transfer (by way of moving from an originating terminal to a destination terminal) of a DDI such that ownership of the DDI is also transferred and centrally recorded as such. Tracking of DDI ownership can occur when the DDI is transferred/swapped.

[016] In a further broad form the present invention provides a method of offering a DDI stored on an information source to a user and tracking the DDI, the user having registered and downloaded an application to the user's terminal, the application encoding a unique identifier of the terminal, said method including the steps of:

authenticating the user;

identifying the DDI to be downloaded to the terminal using a unique serial number;

downloading the DDI to the terminal by communication between the information source and the terminal;

whereby, the DDI can be subsequently downloaded to another terminal only if the DDI is deleted from the original terminal.

[017] The present invention according to a further aspect seeks to provide the transfer of the DDI to another terminal by:

an original user initiating a download of the DDI from the information source;

a recipient user accepting the download from the information source to the recipient user's terminal;

the DDI being deleted from the original user's terminal;

the DDI being downloaded to the recipient user's terminal; and

a unique key being transmitted to the recipient user's terminal.

[018] In a further broad form the present invention also provides a system and a computer readable medium of instructions for realising or embodying the aforementioned methods.

Brief Description Of Figures

[019] The present invention should become apparent from the following description, which is given by way of example only, of a preferred but non-limiting embodiment thereof, described in connection with the accompanying figures.

[020] Fig. 1 illustrates a functional block diagram of a processing system embodiment of the present invention;

[021] Fig. 2 illustrates a series of steps for effecting download of a DDI to a user terminal;

[022] Fig. 3 illustrates a handover protocol for transferring/swapping a DDI;

[023] Fig. 4 illustrates a particular embodiment of the server-side system architecture;

[024] Fig. 5 illustrates a particular embodiment of the user or client-side system architecture.

Modes for Carrying Out The Invention

[025] The following modes are described in order to provide a more precise understanding of the subject matter of the present invention.

Preferred embodiment

[026] In the figures, incorporated to illustrate the features of the present invention, like reference numerals are used to identify like parts throughout the figures.

[027] A particular embodiment of the present invention can be realised using a processing system, an example of which is shown in Fig. 1. In particular, the processing system 100 generally includes at least a processor or processing unit 102, a memory 104, an input/output device 106, coupled together via a bus or collection of buses 110. An interface 112 can also be provided for coupling the processing system 100 to a storage device 114 which houses a database 116. The memory 104 can be any form of memory device, for example, volatile or non-volatile memory, solid state storage devices, magnetic devices, etc. The input/output device 106 receives data input 118 and can include, for example, a network connection, etc.. The output device 106 produces data output 118. The storage device 114 can be any form of storage means, for example, volatile or non-volatile memory, solid state storage devices, magnetic devices, etc..

[028] Input/output device 106 communicates using data input/output 118 with terminals or devices 122 and/or 124 via communication networks or communication protocols 126 and/or 128 (for example the Internet or a wireless network). As an illustrative, but non-limiting, example terminal 122 may be a remote Internet connected PC in communication with

the processing system 100 embodied as a server, and terminal 124 may be a mobile phone in wireless communication 128 with server system 100.

[029] In use, the processing system 100 is adapted to allow DDI's to be stored in and/or retrieved from the database 116. The processor 102 receives instructions via the input/output device 106, for example a download request, and if authenticated, the system 100 can transmit to the terminal 122 or 124 a requested DDI via the input/output device 106. It should be appreciated that the processing system 100 may be any form of processing system, computer terminal, server, specialised hardware, or the like.

Further examples

[030] The following examples provide a more detailed discussion of embodiments of the present invention. The examples are intended to be merely illustrative and not limiting to the scope of the present invention.

[031] In a particular form the present embodiment seeks to ensure that only a finite number of copies of a DDI are downloaded. The method utilised to ensure this includes the following steps.

1. A user, or equally a subscriber, is registered in order to utilise the service. Registration requires the user to provide identification details to the service provider, for example by submission of information to a server. The subscription details are saved in a User Information Database. This registration step only needs to be completed the first time the user or subscriber uses the service.

2. An application, preferably being a Collector Applet, is then downloaded. The service provider transmits the Collector Applet to the user's terminal 122 or 124. This step only needs to be performed the first time the user uses the service.

3. The Collector Applet is "bound" to the user's terminal. Each terminal should have its own Collector Applet. The Collector Applet encodes a unique element of the terminal so that the Collector Applet does not work on any other terminal. The unique element of the terminal may be an IMEI or SIM number or serial number, or any other accessible identifier that uniquely identifies the terminal or part thereof. This step only needs to be performed the first time the user utilises the service.

4. The user is then authenticated. If the user is subscribing for the first time this step may be skipped. Using SSL (Secure Socket Layer) or PKI technology the user is identified to the server offering the service.

5. The DDI is then identified. The DDI to be downloaded is identified via a unique serial number and PIN combination that is provided by the user.

6. The DDI is then downloaded to the user's terminal. Preferably, it should be ensured that the DDI has successfully been downloaded to the terminal, not merely initiated.

[032] Referring to Fig. 2, a method 200 of ensuring successful downloading to the terminal is illustrated. At

step 205 the Collector Applet requests downloading of the DDI from the server. At step 210 the server is required to authenticate the request. If the request is denied the transaction is aborted at step 215. If the transaction is aborted the server does not register the download and the terminal or device removes any downloaded or partially downloaded DDI. If the server authenticates the request at step 210 the server initiates the download of the DDI at step 220. At step 225 the Collector Applet checks whether it should accept the download of the DDI. If the Collector Applet does not accept the download of the DDI the transaction is aborted at step 215. If the Collector Applet does accept the download of the DDI, then the DDI is sent from the server to the terminal as illustrated at step 230. The Collector Applet checks whether the complete downloaded DDI has been received at step 235, and if not the transaction is aborted at step 215. If the complete downloaded DDI is received then the Collector Applet informs the server of completion of the download of the DDI at step 240. The server checks at step 245 whether the download was completed within a preset timeframe, and if not the transaction is aborted at step 215. If the download was completed within the acceptable timeframe, at step 245, then the server acknowledges the completed download to the Collector Applet at step 250. The Collector Applet then verifies itself whether it received the complete downloaded DDI within the timeframe at step 255, which if positive ends the process at step 260, or if not, the transaction is aborted.

[033] Transferring or "swapping" the downloaded digital material embodied as a DDI is now discussed. The present embodiment seeks to allow the transfer of protected material

such that the recipient receives the originator's copy of the digital material and the originator's copy of the digital material is deleted.

[034] This is achieved by client-server-client operation. That is, the two Collector Applets (a first Collector Applet residing on an originator user's terminal and a second Collector Applet residing on a recipient user's terminal) do not communicate directly with each other but rather send messages/information via the server(s). This can be achieved using any client-server network including WAP; SMS; TCP/IP (for example over GPRS or 3G); wireless or wireline Ethernet; or any other type of network.

[035] Once the transfer is initiated the DDI is copied from the originator user's terminal to the recipient user's terminal and it is ensured that the DDI is: (A) successfully transferred to the recipient user's terminal; and (B) deleted from the originator user's terminal.

[036] In a particular embodiment, this can be achieved using the process or protocol illustrated in Fig. 3. Referring to Fig. 3, the originator 300 initiates a download 305 from server 310. The recipient 315 accepts the download of the DDI from the server 310. In Fig. 3, the terms 'msg', 'ack' and 't/o' refer to 'message', 'acknowledge' and 'time/out' respectively. The DDI is then deleted 320 from the originator user's terminal, and the DDI is transmitted 325 to the recipient user's terminal. A unique key is also transmitted to the recipient user's terminal. At the server 310, records can be dated to identify that a particular DDI has been deleted from the originator user's terminal and sent to the recipient user's terminal. If required, timing

of these transactions can be monitored to attempt to identify invalid or incomplete transactions.

[037] The present invention can allow tracking of the pathway of each DDI. This is possible as a user is required to register with the server in order to participate in the service. The user may also only swap a DDI with another user using a server offering the service. This allows the server (or servers) to gather and maintain information about: the popularity and collectable nature of each DDI; the profile of users participating in the DDI swap service for different segments and types of DDIs; and the buying and swapping habits of users.

[038] Tracking of each DDI can also be associated with billing or accounting software to collect and/or distribute revenues or payments appropriate to each DDI. Users may use the service by fixed subscription fees, charges per DDI or set of DDIs, or any other suitable payment method. In a particular embodiment, digital material content providers may or may not be charged a subscription fee, and it is possible that the service could distribute royalty fees to content providers.

[039] Illustrated in Fig. 4 is a particular server-side system architecture suitable for use in the present embodiment. Server(s) 400 includes Content Library Server (CLS) 405 housing Content Library Database (CLD) 410 and web server 415. User Information Server (UIS) 420 can house User Information Database (UID) 425 and web server 430. Web server 415 is responsible for digital material content management, such as uploading, removing, viewing and editing of content. Web server 430 is responsible for management of

user information. The User Information Server 420 is also preferably in communication 435 with a billing system and network activation system. User requests for registration and content download 440 are received by User Information Server 420 which also provides a response 445 to the user terminal as per the previously mentioned methods.

[040] Fig. 5 illustrates the user or client-side system architecture according to a particular embodiment of the present invention. The server 400 (or servers) are part of a service provider network 505, although this is not an essential feature. Communication of content download requests 510, licensed content transmission 515 and tracking information 520 can occur via base station 525 in the case of a GSM/GPRS network 530. User terminal 535 (in this case a mobile telephone) initiates content download requests 510, receives content downloads 515 and offers tracking information 520 to the server 400. Content downloads 515 in the embodiment illustrated can be via different methods including: SMS, WAP, WiFi/802.11, or any other suitable means. Licensed or copyrighted content 540 can be transferred or swapped with other user terminals 545 and 550 via any suitable means, such as infra-red 555, bluetooth 560 or WiFi 565. Tracking information 570 is transmitted/received from other terminals 550 or 545 to/from the server 400 via network 530.

[041] Thus, there has been provided in accordance with the present invention, a system and method allowing the downloading, monitoring and/or tracking of digital material.

[042] The invention may also be said to broadly consist in the parts, elements and features referred to or indicated

herein, individually or collectively, in any or all combinations of two or more of the parts, elements or features, and wherein specific integers are mentioned herein which have known equivalents in the art to which the invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

[043] Although the preferred embodiment has been described in detail, it should be understood that various changes, substitutions, and alterations can be made by one of ordinary skill in the art without departing from the scope of the present invention.

DATED this 19th day of December, 2003

DANIELLE LEHRER and ROBI KARP
By Their Patent Attorneys
DAVIES COLLISON CAVE

Figure 1

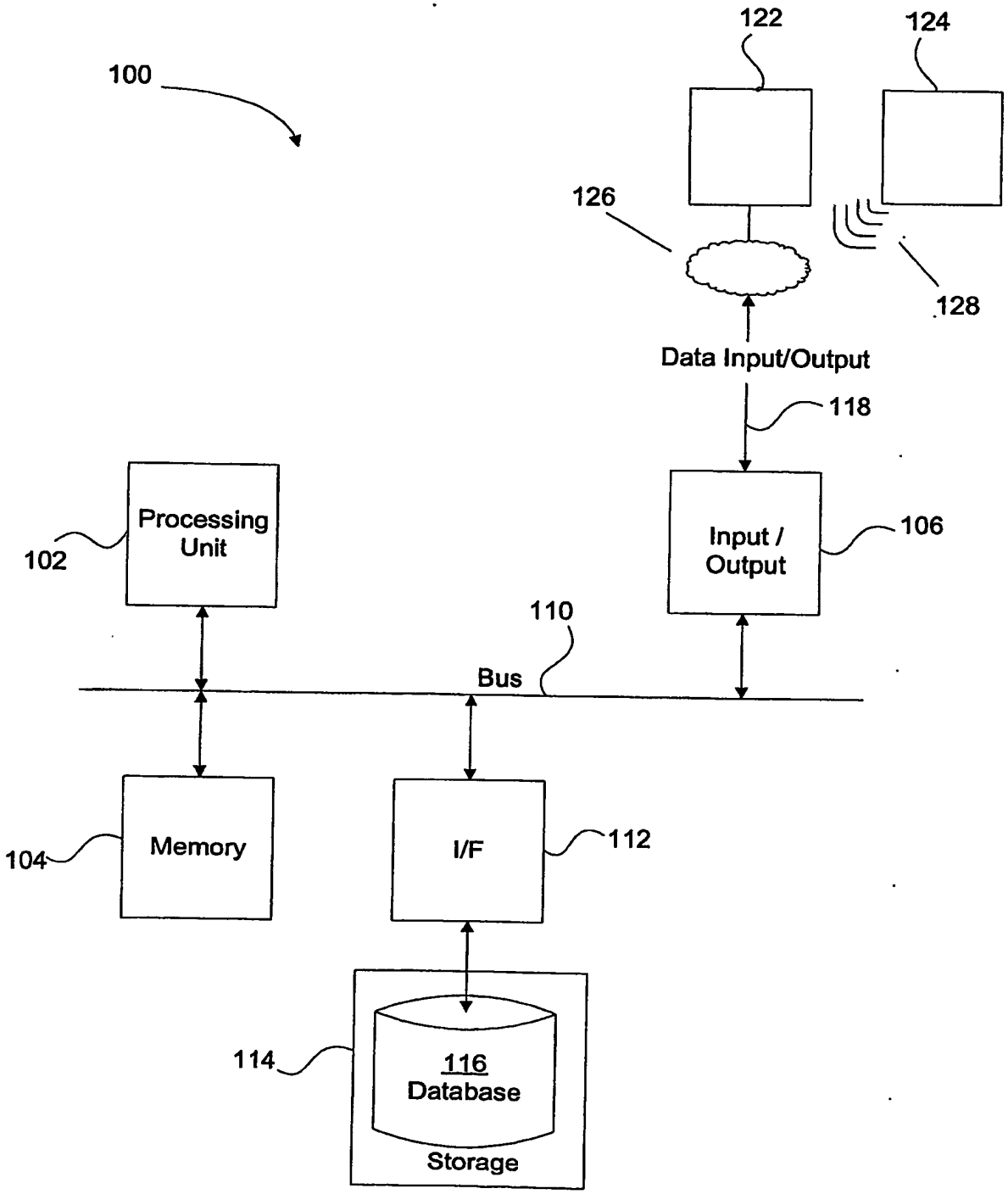

100
122
124
126
128
Data Input/Output
118
Processing Unit
102
Input / Output
106
110
Bus
Memory
104
I/F
112
114
116
Database
Storage

Figure 2

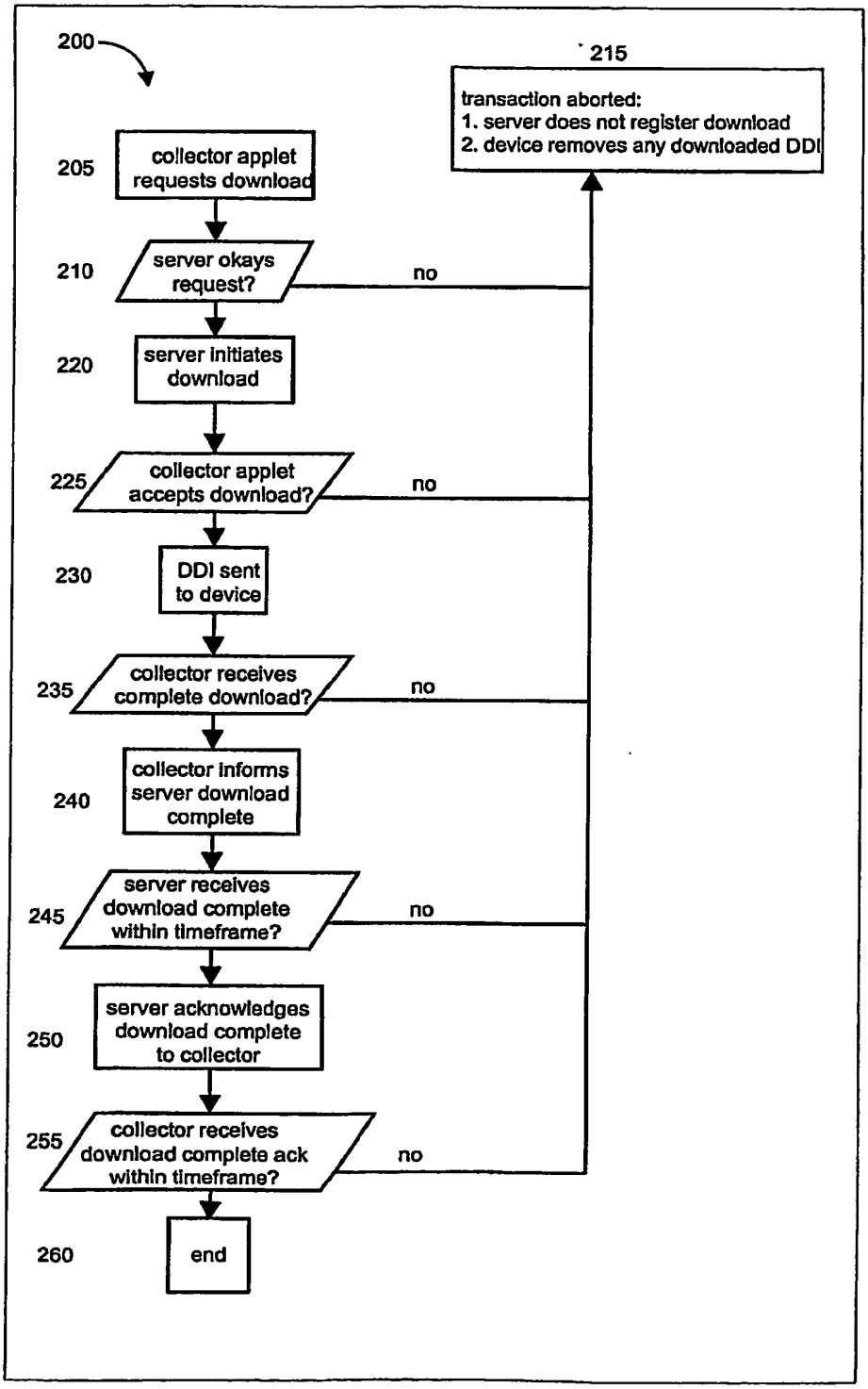

200
215
transaction aborted:
1. server does not register download
2. device removes any downloaded DDI
205
collector applet requests download
210
server okays request?
no
220
server initiates download
225
collector applet accepts download?
no
230
DDI sent to device
235
collector receives complete download?
no
240
collector informs server download complete
245
server receives download complete within timeframe?
no
250
server acknowledges download complete to collector
255
collector receives download complete ack within timeframe?
no
260
end

Figure 3

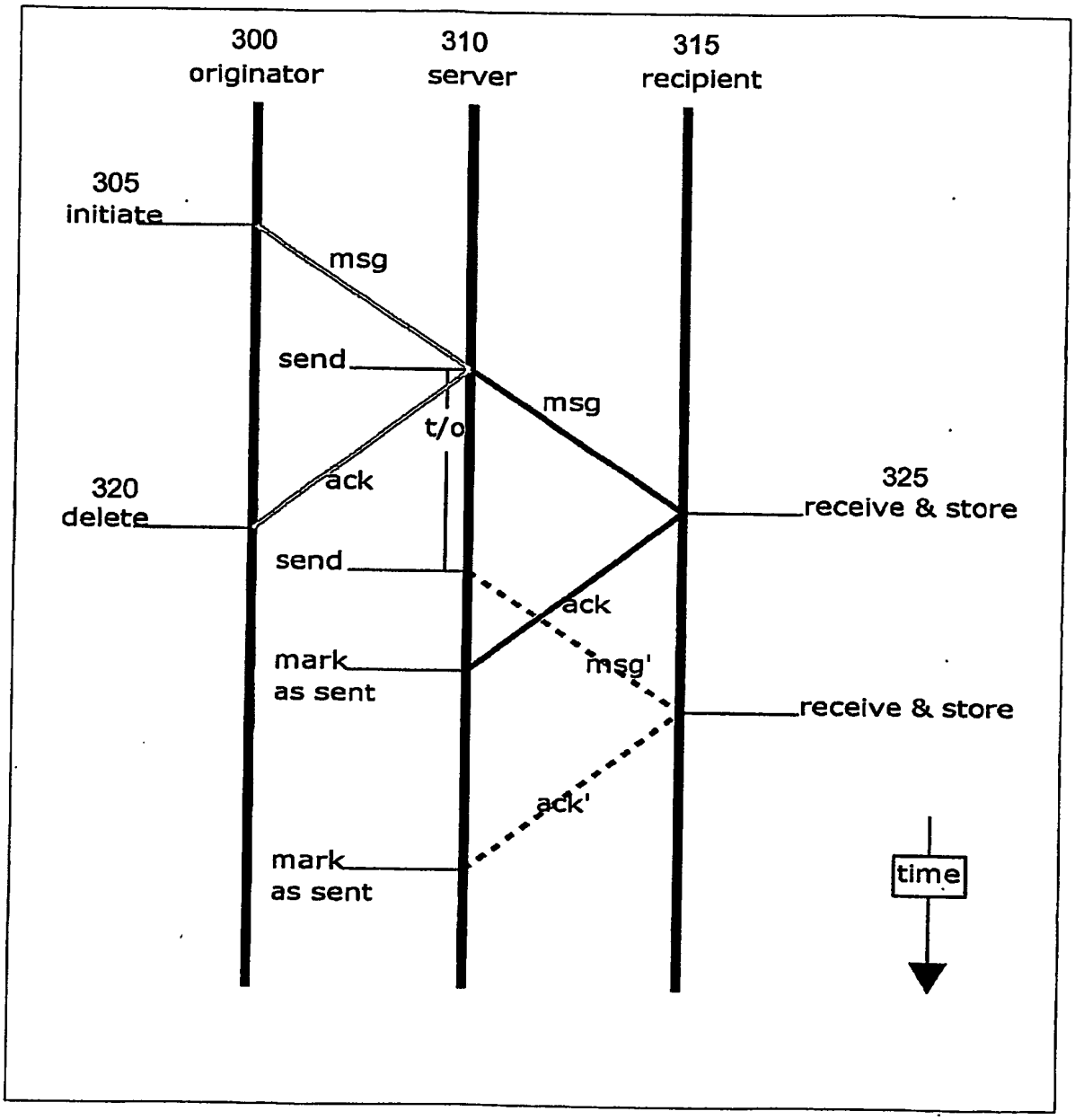

300
originator
310
server
315
recipient
305
initiate
msg
send
msg
t/o
ack
320
delete
325
receive & store
send
ack
mark
as sent
msg'
receive & store
ack'
mark
as sent
time

Figure 4

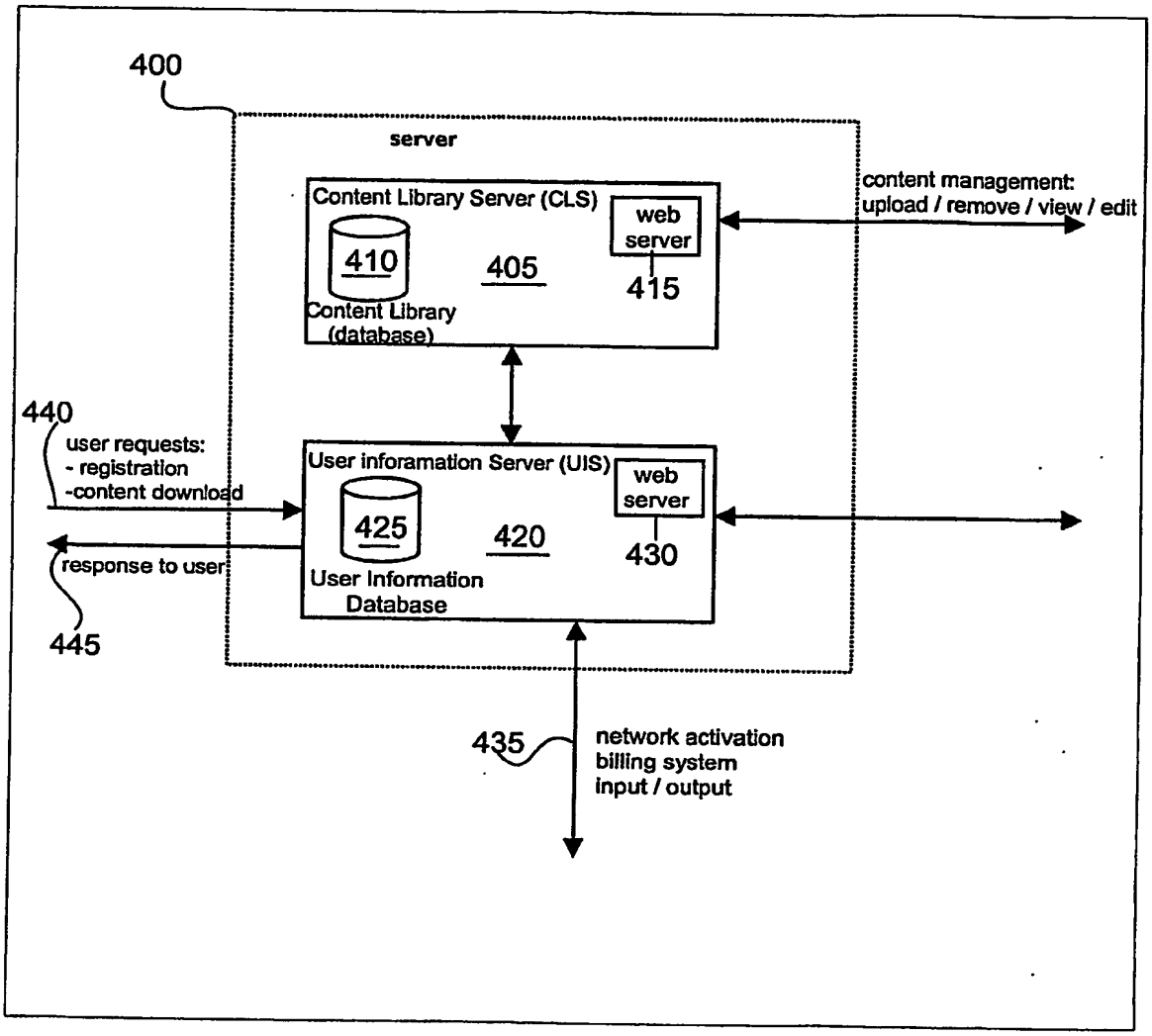
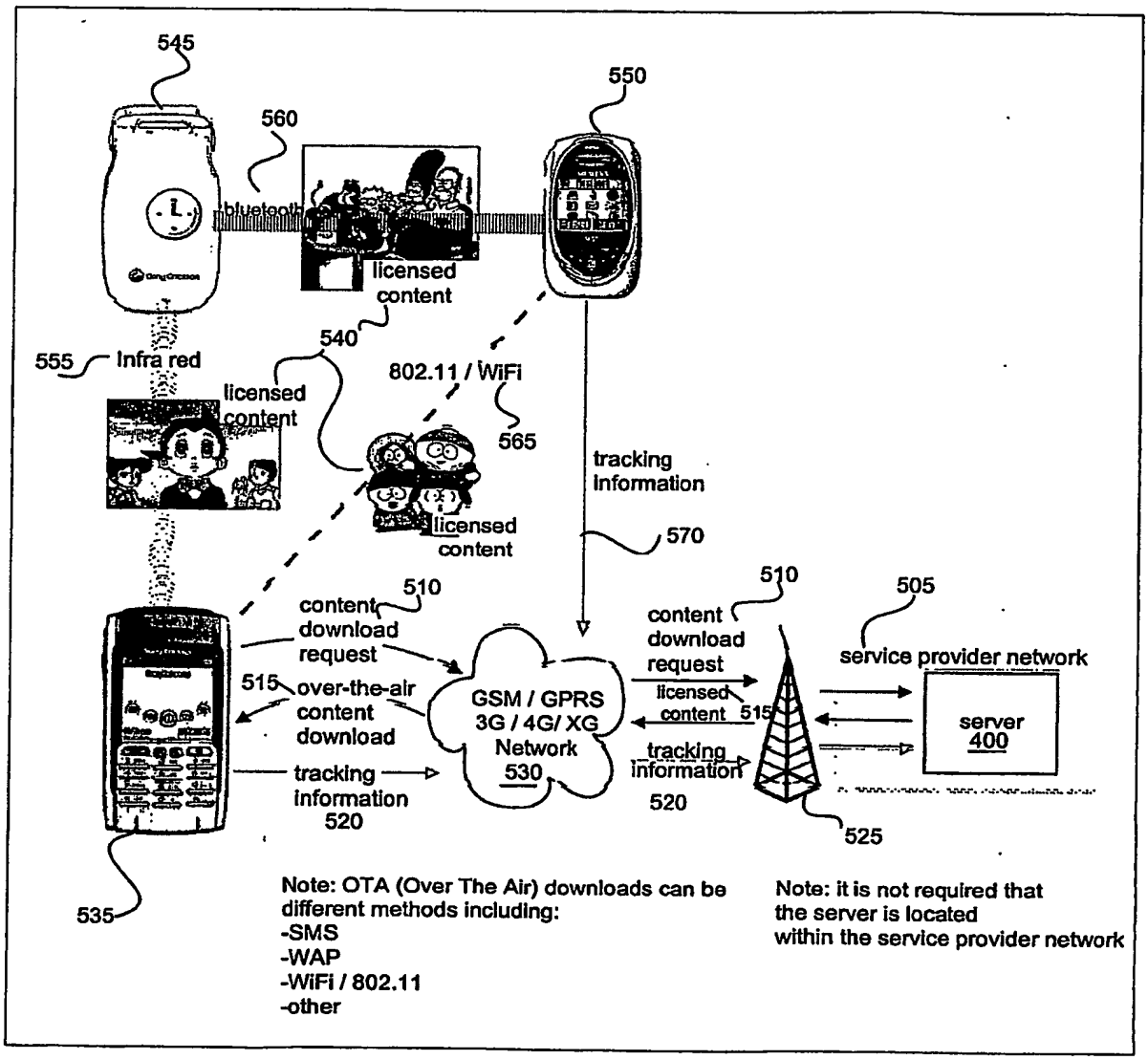

400
server
Content Library Server (CLS)
web server
410
405
415
Content Library (database)
content management: upload / remove / view / edit
440
user requests:
- registration
-content download
User inforamation Server (UIS)
web server
425
420
430
response to user
User Information Database
445
435
network activation
billing system
input / output

Figure 5


545
550
560
bluetooth
licensed content
540
555
Infra red
licensed content
802.11 / WiFi
565
tracking Information
licensed content
570
510
content download request
515
over-the-air content download
tracking information 520
GSM / GPRS 3G / 4G/ XG Network 530
510
content download request
licensed content 515
tracking information 520
505
service provider network
server 400
525
535
Note: OTA (Over The Air) downloads can be different methods including:
-SMS
-WAP
-WiFi / 802.11
-other
Note: it is not required that the server is located within the service provider network

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